

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 61

January, 1959

No. 721

SYNOPSIS OF THE GENUS *LEPANTHES* IN MEXICO

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and

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Prior to 1938, only four species of the orchidaceous genus *Lepanthes* were known to be native to Mexico. In 1938, Schultes described *Lepanthes Rekoii* from a Oaxacan collection and began a study of the numerous Mexican specimens of the genus in the Orchid Herbarium of Oakes Ames. The study was later carried out jointly by the two writers of this paper. Subsequent collections referable to *Lepanthes* were made in Mexico by Dr. H. Emery Moore of the Bailey Hortorium and by Dr. Robert L. Dressler, now of the Missouri Botanical Garden; several undescribed species were discovered in the Moore and Dressler collections and are herein described by Mr. Charles Schweinfurth and by Dr. Dressler.

Many of the specimens of Mexican *Lepanthes* are from the valuable collection of the late Mr. Erick Ostlund of Colonia del Valle, D. F. and Cuernavaca, Mexico. Four new species were found in the Ostlund collection, and sundry sterile specimens also preserved in his herbarium (now a part of the Orchid Herbarium of Oakes Ames) indicate that botanical explorations in central and southern Mexico, especially in Guerrero, Oaxaca and Chiapas, may yet increase the number of Mexican species.

In this paper, an enumeration of the Mexican representatives

of *Lepanthes* is given, together with a key to the recognised species, of which there are sixteen. Nine are herein described as new. The material on which the paper is based is preserved in the Orchid Herbarium of Oakes Ames.

Lepanthes tridentata Sw., a West Indian species, has been reported from Mexico, but we have omitted it in our enumeration, believing the report to have been based on the misidentification of a Galeotti specimen of *Pleurothallis disticha* (Linnaea 22 (1849) 820), a concept which, in this paper, is transferred to *Lepanthes*.

Lepanthes turialvae has sometimes been credited to the Mexican flora. This binomial refers to an extremely confused concept, so confused that the rejection of the name as a *nomen confusum* has been suggested (Schultes, R. E. in *Rhodora* 60 (1958) 97). No matter which of the several ways in which the binomial has been used be adopted, *Lepanthes turialvae* is definitely not represented in our material from Mexico.

Species of *Lepanthes* are found in both the Atlantic and the Pacific watersheds of Mexico in relatively high regions of the following states: Hidalgo, Mexico, Puebla, Vera Cruz, Oaxaca, Guerrero and Chiapas. It is noteworthy that, so far as is known, all the Mexican species are endemic with the exception of *Lepanthes acuminata* Schltr., *L. oreocharis* Schltr. and *L. Pristidis* Rchb.f. In general, the Mexican species show relationships with the Middle American representatives of the genus. In some cases, however, West Indian affinities are apparent.

It is very probable that additional species will still be discovered in Mexico. *Lepanthes* is well represented in Middle and South America and occurs throughout much of the West Indies. The number of species-concepts represented in Middle America is very large in comparison with the number in Mexico: in Costa Rica, for example, forty or more are recognised.

The northern limit of the genus in Mexico appears to be the State of Hidalgo, where Moore collected *Lepanthes avis* and *L. Moorei*.

KEY TO THE MEXICAN SPECIES OF LEPANTHES

1. Peduncles conspicuously overtopping leaves.
 2. Sepals conspicuously ciliate. (15) *L. Schiedei*.
 2a. Sepals eciliate.
 3. Leaves three or more times longer than wide. (9) *L. oreocharis*.
 3a. Leaves suborbicular to ovate-elliptic.
 4. Flowers large, almost equal to leaves (over 1.5 cm. long). Sepals, when spread, forming ellipse. . . (16) *L. tenuiloba*.
 4a. Flowers much smaller than leaves. Sepals, when spread, noticeably constricted at junction of dorsal with laterals.
 5. Lip trilobate. (14) *L. Rekoii*.
 5a. Lip bilobate.
 6. Lobes of lip oblong and divaricate.
 7. Petal-lobes very unequal, without an apicule in sinus between them. (3) *L. avis*.
 7a. Petal-lobes subequal, with definite apicule in sinus between them. (4) *L. congesta*.
 6a. Lobes of lip cuneate and incurved. . . (10) *L. orizabensis*.
- 1a. Peduncles shorter than leaves.
 8. Lip trilobate (middle lobe small, often an apicule).
 9. Petal-lobes conspicuously unequal.
 10. Petal-lobes with an apicule in sinus between them. Anterior lobe of petal obliquely deltoid. . . (2) *L. ancylopetala*.
 10a. Petal-lobes without an apicule in sinus between them. Anterior lobe of petal semiorbicular. . . . (6) *L. Moorei*.
 9a. Petal-lobes subequal.
 11. Petal-lobes glabrous. Sepals ciliate. (12) *L. parvula*.
 11a. Petal-lobes papillose, especially along margin. Sepals not ciliate. (11) *L. papillipetala*.
- 8a. Lip bilobate.
 12. Sepals usually long-acuminate. Lateral sepals recurved.
 13. Petal-lobes subequal. (1) *L. acuminata*.
 13a. Petal-lobes unequal.
 14. Posterior lobe of petal oblong; anterior lobe acuminate, shorter than posterior. . . (8) *L. Oestlundiana*.
 14a. Posterior lobe of petal falcate; anterior lobe suborbicular, larger than posterior. . . (13) *L. Pristidis*.
 12a. Sepals acute or obtuse, not long-acuminate. Lateral sepals not recurved.
 15. Petals ciliate; anterior lobe minute. (7) *L. nigriscapa*.
 15a. Petals eciliate; anterior lobe long. (5) *L. disticha*.

1. ***Lepanthes acuminata*** Schlechter in Fedde Repert. 10 (1912) 355.
 Range: Guatemala, Honduras and Mexico (Chiapas). MEXICO: Dressler 1439.

2. *Lepanthes ancylopetala* Dressler, sp.nov.

Herbae epiphyticae, caespitosae, usque ad 4.5 cm. altae. Folia elliptica, usque ad 18 mm. longa. Inflorescentiae folio breviores. Flores succedanei, in racemis brevibus. Sepalum dorsale deltoideo-lanceolatum vel ovato-lanceolatum, acutum, 2-nervium; sepala lateralia usque ad medium vel ultra connata. Petala transverse bilobata, plusminusve sigmoidea; lobis posterioribus ligulatis vel lanceolatis, ca. 1 mm. longis, lobis anterioribus oblique deltoideis, quam posterioribus multo brevioribus. Labellum cum apiculo infracolumnari, lobis lateralibus ovatis, acuminatis, columnam amplectentibus.

Plant epiphytic, caespitose, 1.5–4.5 cm. tall. Secondary stem erect, monophyllous, 8–25 mm. tall, bearing 4–7 closely appressed sheaths, each with an ovate, acute, infundibuliform mouth; sheaths more or less hispidulose along nerves and margin. Leaves short petiolate, elliptic, tridenticulate apically, 3–5 mm. wide, 8–18 mm. long. Inflorescences 1–several per growth, 3–10 mm. long (peduncle 1.5–5 mm.), rarely equalling the leaf, flowers alternate, 2-ranked, successive. Bracts of inflorescence infundibuliform, .5–1.1 mm. long, acute, carinate, more or less hispidulose or hispid-villous; pedicel .6–1 mm. long, jointed to ovary which is .5–.8 mm. long. Flowers rose-pink. Dorsal sepal deltoid-ovate, acute, somewhat concave, 1.2–1.6 mm. wide, 2.2–2.5 mm. long, 3-veined; lateral sepals 2-veined, obliquely deltoid-lanceolate to ovate-lanceolate, acute, .8–1.3 mm. wide, 2.2–2.8 mm. long, connate for 1.1–1.6 mm. Petals transversely bilobed, with a tooth more or less conspicuously developed at the junction of the lobes, the posterior lobe much the larger, each lobe somewhat bent near the base, so that the petal is often somewhat sigmoid in form; posterior lobe .8–1 mm. long, .25–.45 mm. wide, ligulate to lanceolate, sometimes slightly falcate, acute to obliquely obtuse; anterior lobe obliquely deltoid, .2–.5 mm. long, acute or obtuse. Mid-lobe of lip an upcurved apicule beneath column, .15–.25 mm. long, lateral lobes clasping column, ovate, acuminate and incurved anteriorly (more or less comma-shaped), .35–.6 mm. wide, .7–.8 mm. long. Column .6–.85 mm. long, dilated above.

MEXICO: Estado de Chiapas, Municipio de Ocosingo, Laguna Ocotál Grande, about 25–30 km. southeast of Monte Líbano. Alt. about 950 m. "Karst topography. Epiphytic on small mossy trees in pine forest, also (but less common) on trees along lake shore and in upper branches of tall tropical evergreen forest; flowers rose-pink." July 20–August 20, 1954. *Robert L. Dressler 1475* (TYPE in Herb. Ames 69093).

This species is similar in habit to *Lepanthes stenophylla* Schltr. and *L. oreocharis* Schltr., but it is readily distinguished by its very unequal petal-lobes; it is also a smaller plant. Other species,

such as *Lepanthes nigriscapa* and the related *L. inaequiloba* A. & S., have very unequal petal-lobes; but the petals of these species are of a different shape, and the plants are of quite different habit.

The specific epithet refers to the "bent petal" which is characteristic of the species.

3. *Lepanthes avis* Reichenbach f. Xen. Orch. 1 (1856)
144, tab. 50, II, 5-7.

Range: Mexico (Vera Cruz, Hidalgo). MEXICO: *Moore 5288*; *Smith 341*; *von Kirchmar s. n.* (Record from the Reichenbach Herbarium (TYPE)).

4. *Lepanthes congesta* R. E. Schultes, sp. nov.

Herbae epiphyticae, caespitosae, usque ad 4 cm. altae. Caules secundarii erecti, numerosissimi, vaginarum ostiis et nervis minute hispidulis. Folium rotundato-ellipticum, leviter marginatum, obtusum vel subacutum. Inflorescentiae folium multo superantes, congestiflorae. Flores minimi, succedanei. Sepalum dorsale valde cucullatum, late ovatum, acuminatum, 3-nervium. Sepala lateralia usque ad medium connata, ovata, apice subacuminata, 2-nervia. Petala transverse bilobata, inter lobos cum apiculo; lobi posteriores oblongi, margine integri; lobi anteriores minores sed similes. Labellum bilobatum, lobo utroque oblongo vel obovato; apice rotundato, incurvato. Columna superne dilatata.

A caespitose, epiphytic herb up to 4 cm. high. Secondary stems erect, very numerous, concealed by several closely appressed hyaline sheaths, each of which terminates in an infundibuliform mouth; sheaths hispidulous along the nerves and on the thickened margin of the mouths. Leaves round-elliptic, marginate, obtuse or subacute, 8-9 mm. long, 6-7 mm. wide. Peduncles much longer than the leaves. Flowers many, borne in succession in very congested racemes. Lateral sepals about 2 mm. long, 1.1 mm. wide, connate for more than half their length, ovate but apically acuminate-acute, 2-nerved. Dorsal sepal cucullate, about 2 mm. long, basally 1.2 mm. wide, broadly ovate, 3-nerved. Petals transversely bilobed, with an apicule between the lobes; the posterior lobes oblong, the margin entire, 1 mm. long, 0.5 mm. wide; the anterior lobes about 1 mm. long, 0.3 mm. wide. Lip bilobed, each lobe oblong or obovate with an incurved, rounded apex, 0.8 mm. long, 0.3 mm. wide. Column 1-1.2 mm. long.

MEXICO: Estado de Vera Cruz, Orizaba. "On oak trees". May, 1905, *C. A. Purpus 1355* (TYPE in Herb. Ames 67044).

There has long been indecision as to the proper identification

of *Purpus 1355*. Mr. A. A. Eaton, in the first decade of this century, studied the collection, made a sketch of the flower and wrote that the plant "agrees in essentials with *Lepanthes avis* but usually has more than one or two peduncles and there are discrepancies in detail of the flower; but as Reichenbach's drawings in *Xenia* are evidently poor, drawn apparently by someone who did not know just what to represent, I think this may safely be called *L. avis*. Column agrees well."

In 1939, Schultes studied the collection and expressed doubt that it could be referable to *Lepanthes avis*.

There can be little uncertainty that, in *Purpus 1355*, we are dealing with a concept hitherto undescribed. There are a number of points of disagreement with *Lepanthes avis*, to which it seems to bear closest affinity. *Lepanthes congesta* has longer spikes, very much exceeding the leaves and usually has many more flowers. There are, furthermore, three or four inflorescences arising together, not, as in *Lepanthes avis*, singly or rarely in pairs. *Lepanthes congesta* has flowers which are yellow, not red and white as in *L. avis*. The lip of *Lepanthes congesta* is not divaricate but is, on the contrary, very strongly inturned at the tip of the lobes. Perhaps the difference of greatest degree is to be found in the petal, for while *Lepanthes avis* has (according to Reichenbach's figure) very unequal lobes, those of *L. congesta* are subequal with a definite apicule in the sinus between them.

5. ***Lepanthes disticha*** (Rich. & Gal.) Garay & R. E. Schultes, comb. nov.

Pleurothallis disticha Richard & Galeotti in *Ann. Sci. Nat.*, sér. 3, 3 (1845) 16.

For more than a century, this obscure concept was included in the genus *Pleurothallis*. Recent investigation, however, has shown it to belong definitely to *Lepanthes*.

The accompanying plate of *Lepanthes disticha* was prepared from *Nagel et Monzón 6754*.

6. ***Lepanthes Moorei*** C. Schweinfurth, sp. nov.

Herba epiphytica, pusilla, caespitosa. Caules tenues, plusminusve

erecti, vaginis pluribus arcte tubulatis omnino obtecti. Folium breviter petiolatum; lamina elliptica vel ovato-elliptica, subacuta vel subacuminata, basi cuneata. Inflorescentia saepissime unica, supra dense paucivel multiflora, quam folium brevior. Flos parvus, ut in genere membranaceus. Sepalum dorsale late ovatum, abrupte acutum. Sepala lateralibus oblique ovata, abrupte acuta, per medium inferiorem connata. Petala transversa, in circuitu oblique ovato-lanceolata. Labellum trilobatum, comparate magnum, lobis lateralibus triangulari-lanceolatis, incurvis, columnam excedentibus.

Plant epiphytic, small, slender, caespitose, up to 7 cm. high. Roots fibrous, glabrous, relatively stout. Rhizome abbreviated. Stems congested, very slender, erect or lightly arcuate, entirely concealed by 8 or less close tubular sheaths which are finely muriculate along the nerves and terminate in an ovate marginate hispid mouth, up to 5.5 cm. long (very variable in height). Leaf solitary, terminal, erect, spreading, shortly petioled; lamina elliptic or ovate-elliptic, sub-acute to short acuminate with a tridenticulate apex (when mature), cuneate at base, up to 2.1 cm. long and 1 cm. wide, chartaceous in the dried specimen. Inflorescences solitary (very rarely paired), more or less shorter than the leaf, densely 2- to many-flowered, up to 1.8 cm. long. Floral bracts congested, distichous, infundibuliform. Flower very small, membranaceous, column orange with red blotches. Sepals connate as in the genus, glabrous. Dorsal sepal broadly ovate, abruptly acute, 3-nerved below the middle, about 3 mm. long and 2.4 mm. wide. Lateral sepals obliquely ovate, abruptly acute, connate up to the middle, 2-nerved, about 2.8 mm. long (from the apex to the base of the column) and 1.8 mm. wide where broadest. Petals transverse, obliquely ovate-lanceolate in outline, minutely cellular-pubescent on the margins, about 1 mm. long and 2 mm. wide; posterior lobule relatively large, obliquely ovate-triangular, obtuse; anterior lobe very short, semiorbicular. Lip adnate to the lower part of the column, 3-lobed; lateral lobes relatively large, obliquely triangular lanceolate, incurved, obtuse, peltate, about 1.8 mm. wide above; mid-lobe minute, hirsute, apparently deciduous. Column arcuate-decurved, shorter than the lip, with an enlarged, subquadrate, 3-dentate rostellum.

MEXICO: Estado de Hidalgo, Distrito de Zacualtipán. "Slopes of ravine with pine-oak and moss-covered beech-magnolia woods. To the left of road beyond Rancho El Reparo, about 6.1 miles on road from Zacualtipán to Tlahuelompa." Alt. about 2000 m. October 14, 1949, *H. E. Moore, Jr.* 5289 (TYPE in Herb. Ames No. 65879).

This species differs from *Lepanthes inaequiloba* A. & S. in its slender aspect, with differently proportioned petals and larger lip.

7. *Lepanthes nigriscapa* R. E. Schultes & Dillon, sp. nov.

Herbae epiphyticae, caespitosae, usque ad 15 cm. altae. Caules secundarii erecti, plusminusve septemvaginati, vaginarum infundibuliformium ostiis hispidulis. Folia elliptica, obtusa, apice tridentata. Pedunculi foliis breviores vel subaequales. Flores pauci in racemis abbreviatis. Sepalum dorsale late lanceolatum, obtusum, 3-nerviium. Sepala lateralia usque ad medium connata, late lanceolata, obtusa, 2-nervia. Petala late elliptica, transverse bilobata; lobi posteriores late elliptici, ciliati in margine exteriori; lobi anteriores minuti, obtuse triangulares. Labellum bilobatum, lobo utroque dolabriformi, apice rotundato incurvo, in sinu incisura triangulari. Columna sursum dilatata.

A caespitose, epiphytic herb up to 15 cm. high. Secondary stems up to 11 cm. long, strong, erect, concealed by about 7-8 closely appressed, somewhat coriaceous sheaths, each of which terminates in an infundibuliform mouth. Sheaths hispidulose along the prominent nerves and on the thickened margins of the mouths. The uppermost sheath enclosing the petiole of the leaf. Leaves 4.5 cm. long and 1.5-2 cm. wide, elliptic, obtuse, tridentate at the apex. Peduncles not over-topping the leaves. Flowers few, borne in succession in abbreviated racemes. Lateral sepals 2.3 mm. long, about 1-1.3 mm. wide, connate for more than half their length, broadly lanceolate, obtuse, 2-nerved, the inner nerve more prominent. Dorsal sepal broadly lanceolate, obtuse, 2.5 mm. long, 1.5 mm. wide, 3-nerved. Petals transversely bilobed, broadly elliptic in outline, 2.2 mm. wide; the posterior lobe broadly elliptic, 1.9 mm. wide and 1 mm. long, ciliate along the outer margin; the anterior lobe very minute, 0.3 mm. wide, obtusely triangular. Labellum bilobed, each lobe dolabriform with a rounded, strongly incurved apex, 1 mm. long, with a slight triangular indentation in the sinus. Column dilated upwards. The sepals are yellow, and the petals and lip are red.

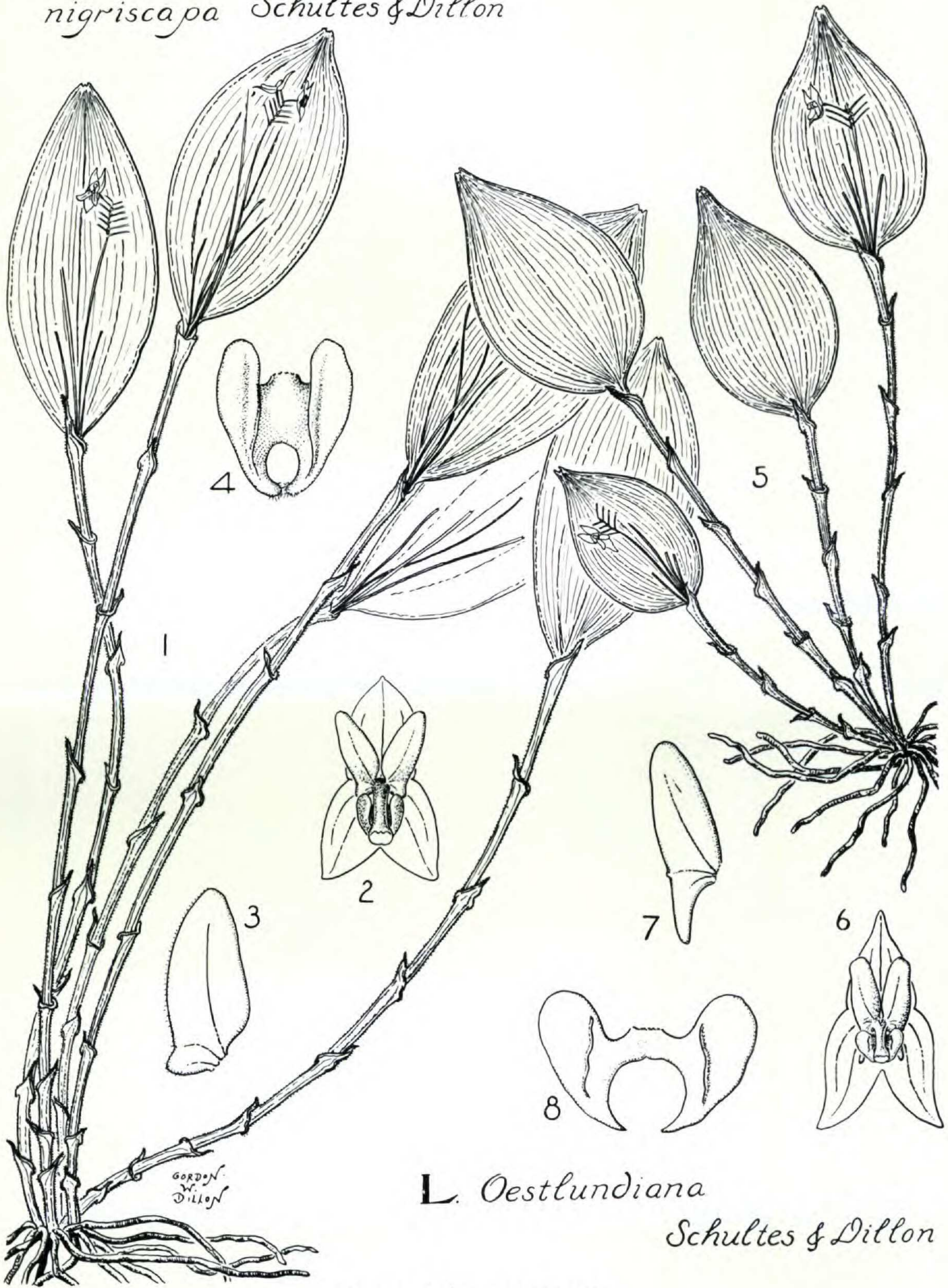
MEXICO: Estado de Oaxaca, Pacific slopes, northwest of Pluma Hidalgo. "Epiphytic on trees along river near the coffee plantation Copalita." Alt. about 1100 m. October 19, 1936, Nagel & Juan G[onzález] 6441. (TYPE in Herb. Ames 51713).

Future collections may indicate that *Lepanthes nigriscapa* should be treated as a variety of *L. inaequiloba* A. & S. The former has flowers which are only half as large as those of the latter and petals which are ciliolate, not glabrous.

PLATE 1235. LEPANTHES NIGRISCAPA Schultes & Dillon. 1, plant, natural size. 2, flower, enlarged five times. 3, petal, enlarged ten times. 4, lip, enlarged fifteen times. — LEPANTHES OESTLUNDIANA Schultes & Dillon. 5, plant, natural size. 6, flower, enlarged five times. 7, petal, enlarged ten times. 8, lip, enlarged twenty times. DRAWN BY G. W. DILLON.

LEPANTHES

nigriscapa Schultes & Dillon



L. Oestlundiana

Schultes & Dillon

Lepanthes nigriscapa seems to be related to *L. hondurensis* Ames of Honduras, differing from it in part by having smaller flowers with obtuse (instead of acuminate) sepals. The petals of the two species differ very markedly. The structure of the column is similar in both species. While the lips are similar, that of *Lepanthes nigriscapa* lacks the apicule in the sinus which is found in *L. hondurensis*. Vegetatively, *Lepanthes nigriscapa* and *L. hondurensis* are very similar, but the latter has more numerous and more closely placed sheaths than the former, and its leaves tend to be acuminate.

The lip of *Lepanthes nigriscapa* resembles that of *L. cascajalensis* Ames of Costa Rica in being deeply bilobed with inturned apices, but the lobes of *L. cascajalensis* are flat, bearing no thickened ridge. The petals of *Lepanthes cascajalensis* are broader, while the sepals are broader and more acuminate. The column differs markedly. Vegetatively, the two species are very distinct. With the exception of the lip, there is little to point to a relationship between *Lepanthes nigriscapa* and *L. cascajalensis*.

8. *Lepanthes Oestlundiana* R. E. Schultes & Dillon, sp. nov.

Herbae epiphyticae, laxe caespitosae, usque ad 14 cm. altae. Caules secundarii erecti vel leviter patuli, multivaginati, vaginarum infundibuliformium ostiis hispidulis. Folia ovato-elliptica, acuminate, apice tridentata. Pedunculi foliis breviores vel subaequales. Flores pauci in racemis abbreviatis. Sepalum dorsale ovatum, valde acuminatum, 3-nervium. Sepala lateralia ovata, usque ad medium connata, acuminate, 2-nervia. Petala eciliata, transverse bilobata, late lanceolata, lobis posterioribus oblongis, lobis anterioribus multo minoribus. Labellum unguiculatum, bilobatum, lobo utroque malleoliformi, eciliato, ovato, apice acuminato. Columna tenuis, sursum dilatata.

Plants loosely caespitose; epiphytic herbs up to 14 cm. high. Secondary stems erect or slightly spreading, up to 9.5 cm. long, concealed by about 6–9 closely appressed, more or less coriaceous, blackish sheaths each one of which terminates in an infundibuliform mouth. Sheaths hispidulose along the prominent nerves and on the thickened margin of the mouth; uppermost sheath enclosing the petiole of the leaf. Leaves broadly elliptic-ovate, abruptly acuminate, prominently tridentate at the apex, up to 4.5 cm. long and 2 cm. wide. Peduncles not overtopping the leaves. Flowers few, borne in succession in abbreviated racemes. Dorsal sepal 3 mm. long and 1.5 mm. wide, broadly ovate, strongly acuminate, 3-nerved. Lateral sepals 3 mm. long and about 1.2 mm. wide, connate

for about half their length, ovate, strongly acuminate, 2-nerved with the inner nerve more prominent. Petals 2.4 mm. wide, transversely bilobed, broadly lanceolate in outline, eciliate. Anterior lobe of petals 0.7 mm. long, 1.5 mm. wide, oblong. Posterior lobe much smaller, 0.9 mm. wide. Labellum 1 mm. wide, unguiculate, bilobed, each lobe malloleiform, eciliate, ovate in outline, with a prominent central ridge or fold, the apex acuminate and slightly incurved. Column very slender, dilated upwards. Sepals and labellum pale green; petals yellow and red.

MEXICO: Estado de Vera Cruz, Zacuapam. "Epiphytic on trees in damp and shady places near a brook in virgin forest." Alt. about 2925 m. February 12, 1932, *Otto Nagel* 2657 (TYPE in Herb. Ames, 51708).

Lepanthes Oestlundiana seems to be related to Schlechter's *L. scopula*, a native of Middle America. There is a drawing of the type of *Lepanthes scopula* in the Ames Herbarium. The leaves of *Lepanthes Oestlundiana* are more constantly acuminate, the sepals are more acuminate, the lip has broader lobes of a slightly different shape than the corresponding parts of *L. scopula*. The posterior lobe of the petals of *L. scopula*, furthermore, is strongly retrorse, while that of *L. Oestlundiana* is characteristically retrorse. However, the relationship between these two species, is close.

Lepanthes Oestlundiana is related also to *L. nigriscapa* from the Pacific slopes of Oaxaca. The petals of both species have the same general pattern. The posterior lobes of the petals of *Lepanthes Oestlundiana* are oblong and eciliate, while those of *L. nigriscapa* are broadly elliptic and ciliate on their outer margin. The anterior lobe of the petals of the former is oblong, of the latter obtusely triangular. The sepals of *Lepanthes Oestlundiana* are ovate and strongly acuminate, those of *L. nigriscapa* are elliptic and obtuse. The lips, while of the same general pattern, differ in that the lobes of the lip of *Lepanthes Oestlundiana* bear a central ridge or fold while in *L. nigriscapa* the ridge is almost marginal. The apices of the lobes of the lip of the former are acute and eciliate, those of the latter are obtuse and coarsely ciliate. *Lepanthes Oestlundiana* has broadly elliptic-ovate leaves with prominently tridentate apices, while in *L. nigriscapa* the leaves are elliptic with the tridentation of the apices less marked. These differences, though constant and

certainly of specific importance, nevertheless are not great, and it is clear that the two species are very closely related. This close relationship assumes additional significance when it is emphasized that *Lepanthes Oestlundiana* is a plant of the Atlantic watershed of Vera Cruz, while *L. nigriscapa* grows on the Pacific watershed of Oaxaca.

We take pleasure in naming this species in memory of the late Mr. Erik Ostlund from whose large herbarium of orchids this collection came.

9. *Lepanthes oreocharis* Schlechter in Fedde Repert. 10
(1912) 483.

Range: Guatemala and Mexico (Chiapas, Guerrero). MEXICO: *Matuda 1688; Juan G[onzález] 1060; G. B. Hinton 1744; Wendt s. n.* (TYPE).

10. *Lepanthes orizabensis* R. E. Schultes & Dillon, sp. nov.

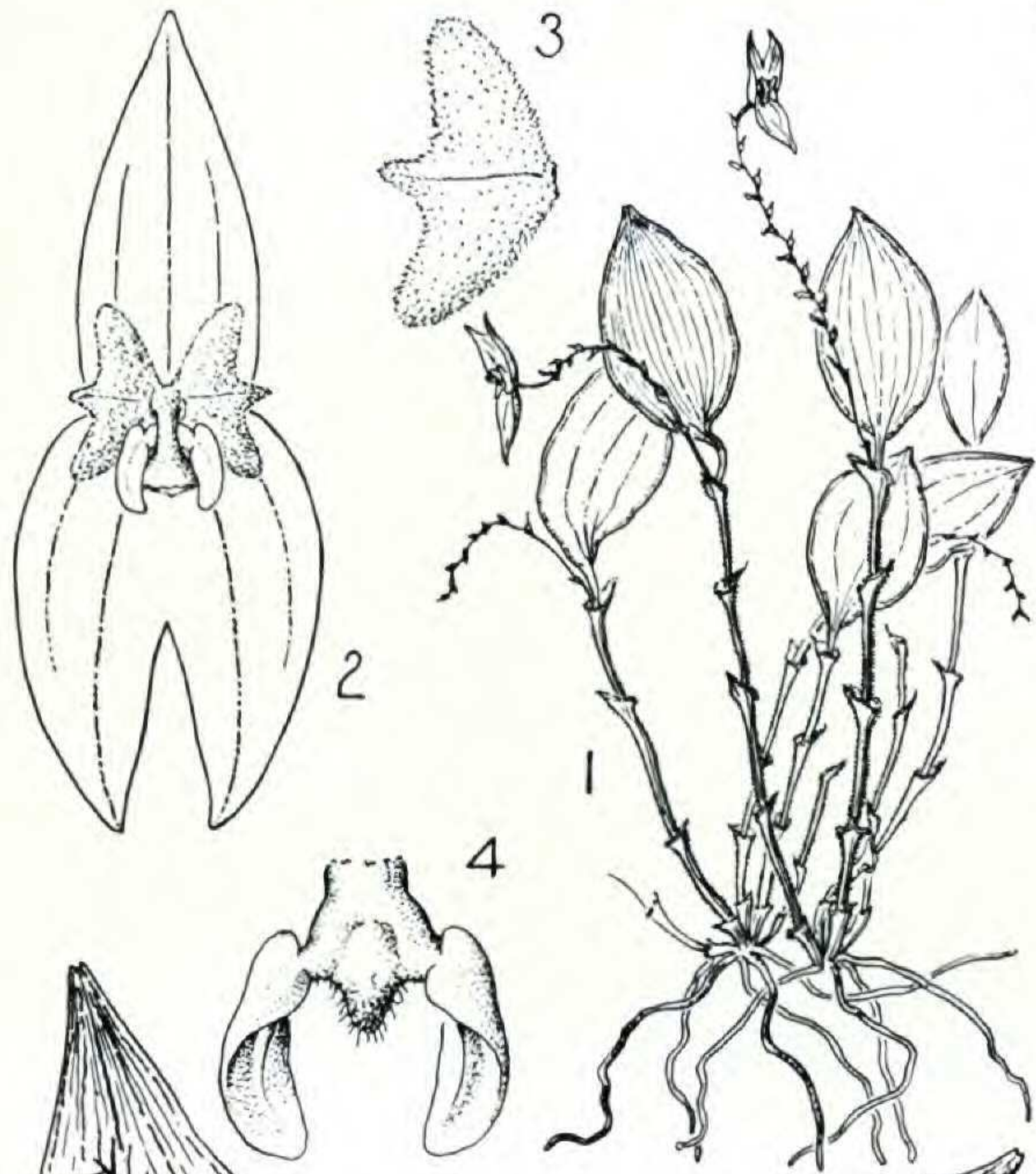
Herbae epiphyticae, caespitosae, usque ad 5 cm. altae. Caulis secundarii erecti, plusminusve septemvaginati, vaginarum infundibuliformium ostiis hispidulis. Folia suborbicularia vel elliptica, marginata, obtusa, apicibus tridentatis. Inflorescentiae folium superantes. Flores pauci, succedanei, in racemis brevibus. Sepalum dorsale late lanceolatum, acuminatum, 3-nerviium. Sepala lateralia lanceolata, usque ad medium coherentia, apicibus acuminatis recurvis, 2-nervia. Petala eciliata, transverse bilobata, lobis anterioribus oblongis cum apicibus rotundatis, lobis posterioribus cuneatis, apicibus obliquis. Labellum bilobatum, lobo utroque triangulari, apice acuminato incurvato. Columna tenuis, sursum dilatata.

Plants epiphytic, caespitose, up to 5 cm. high. Secondary stems erect, 1.5–3.5 cm. long, concealed by about 7 closely appressed hyaline sheaths, each terminating in an infundibuliform mouth; sheaths hispidulose along the prominent nerves and the thickened margin of the mouth. Uppermost sheath enclosing the petiole of the leaf. Leaves suborbicular to elliptic, marginate, obtuse, 0.8–1.3 cm. long, about 0.7 cm. wide, apex inconspicuously tridentate. Peduncles overtopping the

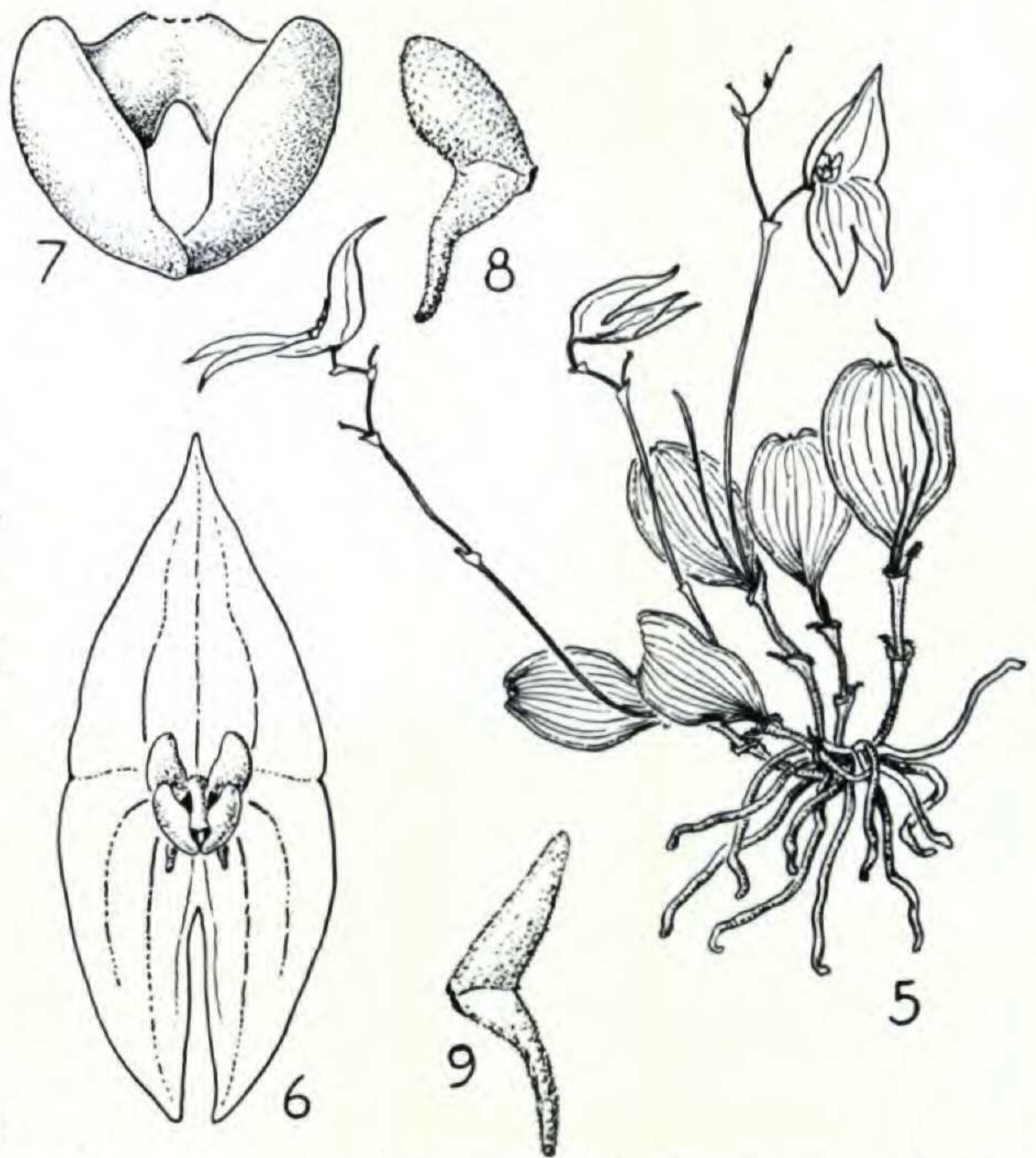
PLATE 1236. LEPANTHES REKOEI R. E. Schultes. 1, plant, natural size. 2, flower, enlarged five times. 3, petal, enlarged ten times. 4, lip, enlarged sixteen times. — LEPANTHES TENUILOBA Schultes & Dillon. 5, plant, natural size. 6, flower, enlarged two and one half times. 7, lip, enlarged ten times. 8, 9, petals showing variation, enlarged five times. — LEPANTHES DISTICHA (Rich. & Gal.) Garay & Schultes. 10, plant, natural size. 11, flower, enlarged five times. 12, lip, enlarged fifteen times. 13, petal, enlarged ten times. — LEPANTHES ORIZABENSIS Schultes & Dillon. 14, plant, natural size. 15, flower, enlarged five times. 16, lip, enlarged ten times. 17, petal, enlarged ten times. DRAWN BY G. W. DILLON.

LEPANTHES

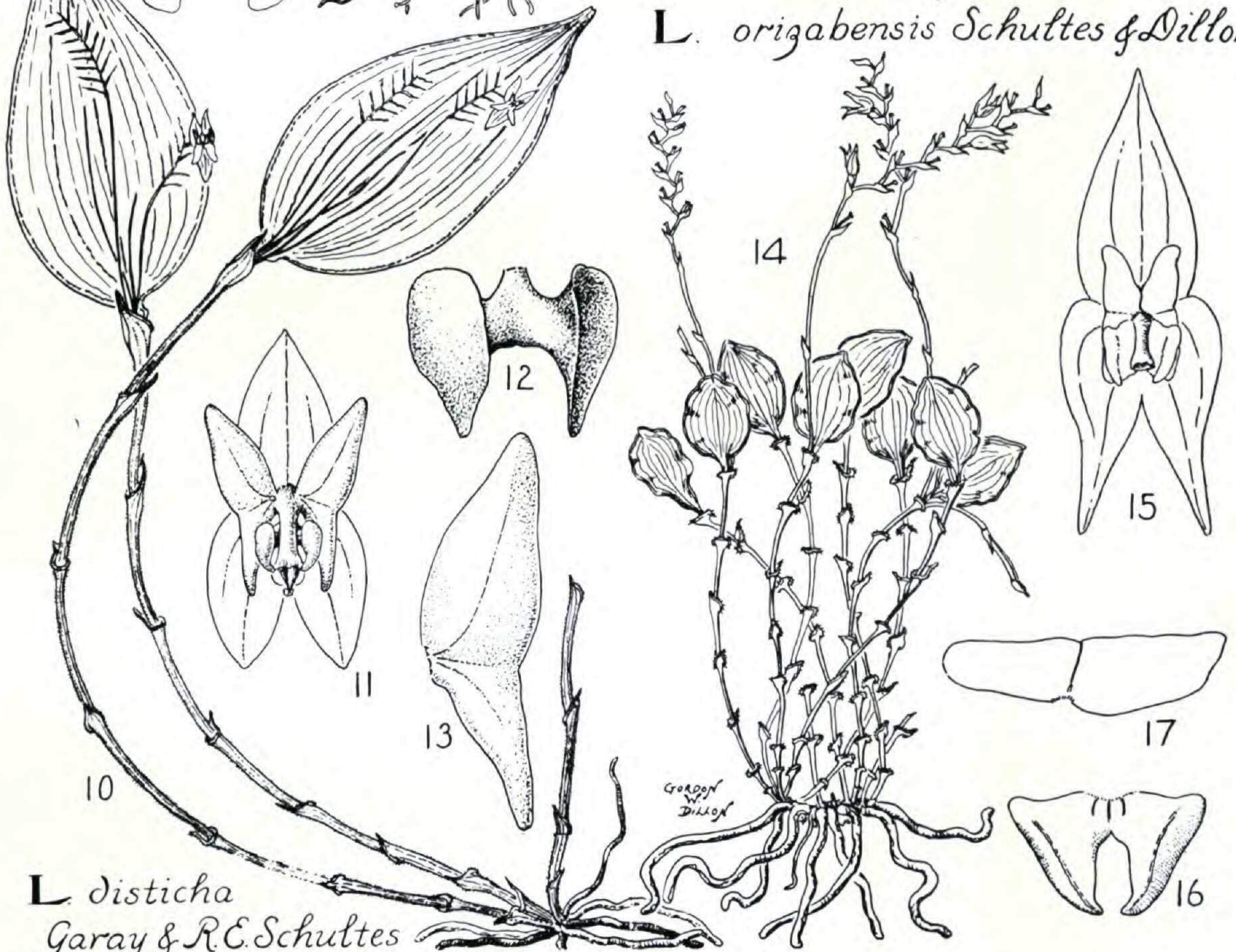
Rekoi R.E.Schultes



L. tenuiloba Schultes & Dillon



L. origabensis Schultes & Dillon



L. disticha
Garay & R.E.Schultes

leaves. Flowers few, borne in succession in abbreviated racemes. Dorsal sepal broadly lanceolate, acuminate, 4.5 mm. long, 2.25 mm. wide, 3-nerved. Lateral sepals coherent for almost half their length, lanceolate, narrowing to a recurved, acuminate tip, 4.5 mm. long, 1.5 mm. wide, 2-nerved, the inner nerve more prominent. Petals about 2.7 mm. wide, eciliate, transversely bilobed. Anterior lobe oblong with rounded apex; posterior lobe cuneate with oblique apex. Lip 1.8 mm. wide, enfolding the column, bilobed, each lobe more or less triangular with a central ridge, the apex acuminate and slightly incurved. Column slender, dilated upwards.

MEXICO: Orizaba, Vera Cruz, 1855, *Müller s. n.* (TYPE in N. Y. Bot. Gard.); Sierra de Agua [Vera Cruz?], May 1854, *Müller 982.*

Lepanthes orizabensis seems to be allied to *L. avis*, being similar vegetatively, in the shape of leaf, in the lax inflorescence and in general aspect. *Lepanthes orizabensis* is larger, however, and differs from *L. avis* (according to Reichenbach's rather sketchy drawings) in the shape of the petals, the shape of the lip and the relative size of the flowers.

Another ally of *Lepanthes orizabensis* is *L. Schiedei*, the type specimen of the former having been originally determined as the latter species. The absence of cilia on the sepals of *Lepanthes orizabensis* and the differently shaped lip, however, make these two species quite distinct.

Lepanthes orizabensis is likewise very closely allied to *L. fractiflexa* A. & S. of Cuba, from which it can be separated by its smaller flowers and sepals of a different shape.

11. *Lepanthes papillipetala* Dressler, sp. nov.

Herbae parvulae, caespitosae, epiphyticae, usque ad 22 mm. altae. Folia petiolata; laminae orbiculares vel ellipticae, usque ad 12 mm. longae. Inflorescentiae folium breviores. Flores succedanei, in racemis brevibus. Sepalum dorsale deltoideo-ovatum, acutum, 3-nervium. Sepala lateralibus oblique ovato-lanceolata, acuta, 2-nervia, usque ad medium connata. Petala transverse bilobata, pilis minutis papillatis ornata; lobis posterioribus ligulatis, apicibus obtusis, ca. 1 mm. longis; lobis anterioribus angustioribus ligulato-lanceolatis. Labellum cum apiculo infracolumnari, lobis lateralibus ovatis, acuminatis, hispidulis, columnam amplectentibus.

Plant epiphytic, caespitose, 10–22 mm. tall. Secondary stem erect, monophyllous, 4–10 mm. tall, bearing 3–4 closely appressed sheaths, each with an ovate, acute, infundibuliform mouth; sheaths more or less

hispidulose along nerves and margins. Leaves petiolate, petiole ca. 2 mm. long, blade orbicular to elliptic, apically tridenticulate, with a pronounced submarginal vein, 3–5 mm. wide, 5–12 mm. long. Inflorescences one to several per growth, 3–5 mm. long (peduncle 1–2.5 mm.), flowers alternate, 2-ranked, successive: bracts of inflorescence infundibuliform, ca. 1 mm. long, acute, carinate, more or less hispidulose. Pedicel 1–1.5 mm. long, jointed to ovary, which is ca. 1 mm. long. Flowers light pink, dorsal sepal deltoid-ovate, acute, 1.75–2.2 mm. wide, 2–2.7 mm. long, 3-veined, midvein with few minute papillae externally, margin sometimes very minutely papillate-serrulate. Lateral sepals 2-veined, obliquely ovate-lanceolate, acute 1.1–1.25 mm. wide, 2–2.9 mm. long, connate for ca. 1.8 mm., apices slightly divergent. Petals transversely bilobed, with a tooth (the apex of the petal) more or less developed at the junction of the lobes; posterior lobe ligulate, obtuse, .8–1.1 mm. long and .4–.55 mm. wide, bearing minute papillate hairs, especially on inner margin (these hairs ca. .04–.05 mm. long); anterior petal lobes narrower, ligulate-lanceolate, obtuse, with a tuft of minute papillate hairs at tip, .2–.3 mm. wide, .65–1 mm. long. Mid-lobe of lip an apicule beneath column, ca. .2 mm. long; lateral lobes clasping column, ovate, acuminate and incurved anteriorly (more or less comma-shaped), hispidulose, especially on posterior margin, .75–.8 mm. long, .3–.5 mm. wide. Column ca. .75 mm. long, dilated above.

MEXICO: Chiapas, Municipio de Ocosingo, Laguna Ocotál Grande, about 25–30 km. southeast of Monte Líbano. Alt. about 950 m. “Karst topography. Flowers light pink, epiphytic on small mossy trees in pine forest, also (but less common) on trees along lake shore and in upper branches of tall tropical evergreen forest.” July 20–August 29, 1954. *Robert L. Dressler 1476* (TYPE in Herb. Ames 69092).

This dwarf species is at once distinguished from all its allies, except *L. parvula*, by the papillate hairs of its petals. Various species, such as the *Lepanthes Lindleyana* Oerst. & Reichb. f. — complex and *L. Rekoii* have ciliate petals, but papillate petals are not common in the genus. In habit, this species resembles *Lepanthes avis*, but the lateral lobes of the lip in the latter species are divergent rather than closely clasping the column as in the former. *Lepanthes papillipetala* is closely related to *L. parvula* but is distinguished by its entire sepal-margins, its hispidulose lip and its larger flowers.

12. *Lepanthes parvula* Dressler, sp. nov.

Herbae parvulae, caespitosae, epiphyticae, usque ad 22 mm. altae.

Folia orbiculari-elliptica, usque ad 10 mm. longa. Inflorescentiae folio breviores. Flores succedanei, in racemis brevibus. Sepala ciliata. Sepalum dorsale deltoideo-ovatum, acutum, 3-nerviis. Sepala lateralia oblique ovata, acuta, 2-nervia, usque ad medium vel ultra connata. Petala transverse bilobata, papillis minutis ornata, lobis falcatis, apicibus obtusis. Labellum cum apiculo infracolumnari, lobis lateralibus ovatis, acuminatis, minutis, papillatis, columnam amplectentibus.

Plant epiphytic, caespitose, 7–22 mm. tall. Secondary stem erect, monophyllous, 3–12 mm. tall, bearing 3–5 closely appressed sheaths, each with an ovate, acute, infundibuliform mouth; sheaths more or less hispidulose along nerves and margins. Leaves petiolate, petiole ca. 1 mm. long, blade orbicular-elliptic, apically tridenticulate, with a somewhat pronounced submarginal vein, 2.5–6 mm. wide, 3.5–10 mm. long. Inflorescences one to several per growth, 2–5 mm. long (peduncle .5–2 mm.), flowers alternate, 2-ranked, successive; bracts of inflorescence infundibuliform, ca. .7 mm. long, carinate, acute, hispidulose. Pedicel ca. .8 mm. long, jointed to ovary, which is ca. .5 mm. long. Flowers light pink, sepals ciliate on margins and slightly papillate on exterior of midveins; dorsal sepal deltoid-ovate, acute, 1.3–1.6 mm. long, .9–1.1 mm. wide, 3-veined (lateral veins very weakly developed); lateral sepals 2-veined (only inner vein well developed), obliquely ovate, acute, ca. .6 mm. wide, 1.3–1.6 mm. long, connate for ca. .9 mm. Petals minutely papillate, transversely bilobed, with a deltoid tooth more or less developed at the junction of the lobes; lobes more or less equal, falcate from a deltoid base, obtuse, .45–.6 mm. long, whole petal lunate with central, deltoid tooth on concave side. Mid-lobe of lip a pubescent apicule ca. .15 mm. long beneath column, lateral lobes minutely papillate, ovate, acuminate, ca. .6 mm. long, clasping column. Column ca. 1.6 mm. long, dilated above. Capsule ca. 2 mm. long.

MEXICO: Chiapas, Municipio de Ocosingo, Laguna Ocotál Grande, about 25–30 km. southeast of Monte Líbano. Alt. about 950 m. "Karst topography. Flowers light pink, epiphytic on small mossy trees in pine forest, also (but less common) on trees along lake shore and in upper branches of tall tropical evergreen forest." July 20–August 20, 1954. *Robert L. Dressler 1477* (TYPE in Herb. Ames 69094).

In its ciliate sepal-margins and general habit, this species resembles the larger *Lepanthes Schiedei* Reichb. f. but differs in several characters: the short inflorescence, the much smaller flowers and the more or less papillate petals and lip, which are differently shaped. From *Lepanthes papillipetala* Dressler, this species may be distinguished at once by its ciliate sepals, its less strongly papillate petals, its papillate lip and its smaller flowers.

These species grow together in pine forests and, without the aid of a lens, can be separated only on the basis of a marked difference in flower size. It is interesting that three distinct new species of *Lepanthes* should be found growing together in the same habitat, especially so when two of the species appear to be rather closely related.

13. *Lepanthes Pristidis* Reichenbach f. in *Linnaea* 22 (1849) 820; *Xen. Orch.* 1 (1856) 151, t. 50, figs. IV, 11-14; in *Walpers Ann. Bot.* 3 (1852-53) 156.

Range: Cuba and Mexico (Vera Cruz). MEXICO: *Liebold s. n.* (Record from the Reichenbach Herbarium) (TYPE); *Sartorius s. n.* (Record from the Reichenbach Herbarium); *Schaffer 51* (Record from Reichenbach Herbarium).

Reichenbach's drawings of this concept are so inadequate that it is not clear from them just what are the affinities of *L. Pristidis*. A study of the type drawings and of Reichenbach's description, however, indicate that it is distinct from the other species of Mexican *Lepanthes*. It is probably related to *Lepanthes disticha*.

Lepanthes Pristidis occurs also in Cuba (Acuña, "Cat. descr. orquid. Cub." (1939) 145).

14. *Lepanthes Reko* R. E. Schultes in *Bot. Mus. Leaflet*. Harvard Univ. 6 (1938) 193.

Range: Mexico (Puebla and Oaxaca). MEXICO: *Juan G[onzález]* 2415; *Schultes 817*; *Schultes & Reko 336* (TYPE).

This exceptional little orchid, known only from one station in northeastern Oaxaca and one station in northeastern Puebla, shows unmistakably clear relationships with *Lepanthes Dawsonii* Ames of Honduras. The two have in common a trilobate lip which is apparently of rare occurrence in the genus.

It has been thought that *Lepanthes* is a genus in which considerable latitude should be allowed in the identification of specimens, because intraspecific variation has been thought to be rather great. Since colonies of *Lepanthes* are usually small and frequently isolated, collections of species of this genus seldom contain sufficient material to permit a study of intraspecific variations. Fortunately, Schultes was enabled to study a number of

living specimens for variation within the species at the type locality of *Lepanthes Rekoii*.

In August 1938, the type of *Lepanthes Rekoii* was collected on an oak tree on the eastern slopes of the great Cerro de los Frailes in the District of Teotitlán in northeastern Oaxaca. Diligent search yielded only one flowering and one fruiting specimen. The characters of this species were so striking and sharp, however, that Schultes described the plant as new. A collection by Juan G[onzález] from Puebla, though differing in some slight details from the type, was cited with the type.

In July, 1939, Schultes revisited the type locality and found in full flower the colony from which the type came. Again, search within a 150-yard radius failed to reveal another colony. Nearly thirty flowers were closely examined before pressing and were compared with a drawing of the type. Very little deviation from the type was noticed. More flowers were critically examined in the laboratory with the type at hand; almost no variation in floral parts and no variation in specific characters was in evidence.

15. *Lepanthes Schiedeii* Reichenbach f. in *Linnaea* 22 (1849) 820;
Xen. Orch. 1 (1856) 144, t. 50, figs. 1, 1-4;
 in *Walpers Ann. Bot.* 3 (1852-53) 524.

Range: Mexico (Vera Cruz and Chiapas). MEXICO: *Matuda 1595*; *Schultes 1012*; *Schiede s. n.* (Record from Reichenbach Herbarium (TYPE)).

16. *Lepanthes tenuiloba* R. E. Schultes & Dillon, sp. nov.

Herba parvula, caespitosa, epiphytica. Caules secundarii erecti, tenues, monophylli, plusminusve trivaginati, vaginarum infundibuliformium ostiis hispidis. Folium ovatum vel ovato-ellipticum, coriaceum, apice tridenticulatum, basi cuneatum. Pedunculi folium superantes. Flos grandis, usque ad 15 mm. longus, purpureo-ruber. Sepala connata, glabra, in circuitu elliptica; sepalum dorsale elongato-triangulari, acutum, prominenter 3-nervium; sepala lateralia triangulari-lanceolata, acutiuscula, 2-nervia. Petala parvula, glabra, transverse bilobata; lobis anterioribus lanceolatis longo cum angusto, abrupte acuminato, lineare apice; lobis posterioribus oblongo-lanceolatis. Labellum bilobatum; lobis lateralibus in circuitu oblique oblongo-ellipticis, in sectione

abrupte malleoliformibus. Columna tenuis, apice dilatata, inter labelli lobos circumdata.

Plant very small, 2.5–3 cm. tall to the tip of the leaf, caespitose, epiphytic. Roots fibrous, short, stout. Secondary stems slender, erect, monophyllous, from 3–10 mm. long, concealed by about 3 hyaline, close-tubular sheaths which end in infundibuliform mouths; sheaths pubescent on the longitudinal nerves and on the margins of the mouth; the uppermost sheath largest, enclosing the petiole of the leaf. Leaf ovate or ovate-elliptic, 8–12 mm. long, 4–7 mm. broad, tridenticulate at the apex, cuneate at the base, coriaceous, marginate, short-petiolate. Peduncles conspicuously overtopping the leaf, very slender, bearing near the middle one tubular sheath with an infundibuliform mouth, up to 30 mm. long, few-flowered (usually only one expanded at a time). Flowers very large for the plant, when spread out up to 1.5 cm. long from the tip of the dorsal sepal to the apex of the lateral ones, borne in succession on a raceme. The sepals glabrous, purplish-red, when spread out forming a perfect ellipse in outline; lateral sepals connate to about the middle, asymmetrically triangular-lanceolate, acutish, 2-nerved, about 7 mm. long, 2.5 mm. wide at the base; dorsal sepal elongate, triangular, acute, prominently 3-nerved, about 7 mm. long, 5 mm. wide at the base. Petals very small, purplish-red, glabrous, transversely bilobed; the anterior lobe lanceolate, 0.7 mm. wide at the base, with a long narrow, abruptly acuminate, linear apex; the posterior lobe oblong-lanceolate, 2 mm. long, 1 mm. wide or less. Labellum bilobed; the lateral lobes obliquely oblong-elliptic in outline, 1.6 mm. long, 0.5 mm. wide, in section abruptly malleoliform, tightly clasping and partially obscuring the column. Column slender, slightly dilated at the apex.

MEXICO: Estado de Chiapas, Siltepec, August 9, 1937, *E. Matuda 1595a*. (TYPE in Herb. Ames, No. 46731; Duplicate Type in Herb. Univ. Michigan).

Lepanthes tenuiloba is not closely related to any known Central American species of *Lepanthes*, unless it be with *L. guatemalensis* Schltr. The two species agree in floral size and in general habit, but there are significant structural differences in the flowers. It is easily distinguished from other species by the flowers which are exceedingly large, considering the size of the plant, and by the connate sepals which, when spread out, form a perfect ellipse in outline instead of being constricted at the junction of the dorsal with the lateral sepals. The relative minuteness of the petals in comparison with the large sepals is a feature which cannot be found in many species. Distinctive also is the shape

of the petals with their curiously attenuated anterior lobes and the shape of the labellum which tightly enfolds the very slender column. *Lepanthes tenuiloba* has the largest flowers among the Mexican species, although several species are larger vegetatively.

Matuda 1595 was a mixed collection. It contained several excellent specimens of *Lepanthes Schiedeii* Reichenb. f. The half dozen or more specimens of the much larger flowered *Lepanthes tenuiloba* have been renumbered *Matuda 1595a*.

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